

DISASTER RESEARCH CENTER  
THE OHIO STATE UNIVERSITY  
COLUMBUS, OHIO 43201

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UNCOORDINATED COLLECTIVE RESPONSE:

THE BUFFALO CREEK HOLLOW DAM BREAK DISASTER OF  
FEBRUARY 26, 1972

By

Michael Kearney  
Department of Sociology  
Disaster Research Center  
The Ohio State University

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On February 26, 1972 an unusual event resulting in major loss of life and property occurred in the Buffalo Creek Hollow of West Virginia. This is a brief descriptive report of that disaster. It is based on data gathered in a field trip by DRC personnel to the disaster site. After a short discussion of the situation and the event, the report gives some attention to the problems associated with the warnings given and the coordination of the community response, both of a formal and informal nature.

### The Background Situation

On Wednesday, February 23, 1972, the swollen black waters of the Guyandotte River, black from the washing of coal and swollen from intermittent heavy rains, were already threatening some of the small communities along its course. The river meandered through Logan County and Lincoln County toward its mouth on the Ohio River at Huntington, West Virginia, here and there flooding a low lying field, blocking a highway, or causing a minor landslide. Staking its usual seasonal claim to its own flood plain, the river did not cause undue concern among the residents of the area. The Tug Fork in Mingo County was also on the rise, so that within a five county area of southwestern West Virginia, the heart of the nation's soft coal fields, a flood threat existed, but a predictable and manageable threat.

However, as the rains continued to fall and the Weather Bureau's prognoses indicated the likelihood of more of the same, the American Red Cross became sufficiently alarmed, by Thursday, February 24, to send regional and national officials into the area to make an on-the-spot appraisal of the situation and to prepare for the possibility of a major flood crisis. Still the situation was not that unusual, and on Friday, February 25, few really expected sudden disaster to strike and few were in a position to predict the direction from which it would come. No one, not even those closest to the dam on the Middle Fork of Buffalo Creek, was able to assess the magnitude of the threat. There had been no alert at the state level. Both the director of the West Virginia Office of Emergency Planning and his assistant were away from the capital for the weekend and the National Guard was not alerted. The State Police were operating at normal strength, keeping an experienced eye on developments and notifying superiors of events as they unfolded. The main police problem at this point was that most of the arterial highways into Logan County were blocked by high water, and communications with the outside world were becoming sporadic due to downed power and telephone lines.

### The Event

At the headwaters of Buffalo Creek, some officials of the Buffalo Mining Company at Lorado, West Virginia were becoming uneasy about the situation -- concerned enough to begin keeping a close watch on the water level behind their "gob pile" on Middle Fork. "Gob" is the local miners' term for the waste products of bituminous coal mining. It includes everything which is not marketable coal,

i.e., slate, mud and rock, and low grade coal. In order for the mining operation to be economically sound these waste products need to be disposed of as close to the mine as possible; they are, therefore, dumped along the sides of hollows. Often these "gob piles" smoke and burn and even explode at unpredictable intervals due to spontaneous combustion of the inflammable bituminous materials under pressure at the core of the piles. The pile on Elk Lick was just such a burning "gob pile" and had grown over the years into quite an unusually large one, so large in fact that it extended completely across the narrow Middle Fork hollow some 4 miles upstream from Lorado. At the foot of this 90 foot high smoking heap lay the tiny coal camp of Saunders consisting of a tight cluster of woodframe houses, a store, and a church: behind it lay a "slurry" pond containing some 175 million gallons of water and "bug dust," i.e., coal dust.

The slate pile (which constituted a dam in this case) served several functions besides the primary one of waste disposal. It provided a year-round supply of water for washing the coal, a process which enhances the smokeless quality of the product. It also served as a filtration system for the "slurry" thus created. The highly acidic, coal-dust laden water pumped back into the impoundment would be a serious pollutant if pumped directly into the stream. Spills of this sort of water had frequently been the cause of massive fish kills in the area and often laid the coal companies open to complaints, suits, and fines. There was hesitation, therefore, about relieving pressure by releasing the impounded water downstream along Middle Fork into Buffalo Creek. On the morning of February 26, the coal company continued to wash coal at a rate of some 5200 tons/day and to pump 400 to 500 gallons/minute back into the impoundment. By 4:00 a.m., the water had risen to within 5 feet of the top of the pile. The previous day the level had been 10 feet lower. Alarmed by this sudden rise, later attributed as much to a settling of the pile indicating incipient failure as to an actual rising of the water, mine personnel and two deputy sheriffs began to issue a warning up and down Middle Fork, particularly in the coal camps of Saunders and Pardee. Many, but not all, of the people in these towns removed themselves to Lorado, 4 miles downstream of the dam and below the confluence of Middle Fork and Buffalo Creek. Here at 8:00 a.m. many of these evacuees met with the mine superintendent who assured them that he had taken action to relieve pressure behind the dam. He had, in fact, called in some bulldozer operators from a nearby strip-mine job, and these men were on the way to Saunders to cut a spillway. At 8:10 February 26, a Saturday morning, before the bulldozer operators were able to reach the site, the "gob pile" exploded.

Eyewitnesses report that the pile began to slide downstream opening a breach in the wall and allowing water to pour into the burning interior. There was a sudden explosion of steam which sent rock and slate more than 1,000 feet into the air. The wall of slurry, estimated at 50 feet high just below the dam, poured out in a rush down the narrow hollow. Due to the nature of the terrain --unbroken ridges on either side of the hollow -- there was little chance that the force of the rushing water would be dissipated into side channels and wide places. It carried the towns of Saunders and Pardee before it and piled up most of the houses at Lorado where many of the former residents of these towns watched in horror from the relative safety of the school house. At Lorado the wall of water entered the slightly wider Buffalo Creek hollow where it exercised a deadly but somewhat more

selective force. Careening off of one side of the hollow it would leave one group of houses relatively undisturbed except for the back water effects, while hitting another group full force and carrying them off their foundations. In this manner it ricocheted down the length of Buffalo Creek through 17 miles and 14 coal towns. At Amherstdale, 10 miles downstream, the black wall of sludge was still variously estimated at 10 to 25 feet in height.

In the confusion of the immediate aftermath, estimates of deaths ranged from 17 to over 500. People scattered over the ridges and went to relatives and friends for help. Others made makeshift shelters on high ground and awaited events. Some of the more fortunate began cleaning out their houses and making provision for neighbors whose homes were destroyed. The confusion of the situation was abetted by the fact that there was no communication with the head of the hollow except by word of mouth from those who were able to make their way out on foot. Six bridges along Buffalo Creek had been destroyed, thwarting relief missions by rescue parties which became stalled 6 miles short of Lorado, and it was not until Monday, two days after the event, that trucks were able to reach the place where the breached dam had stood.

By Monday afternoon, the body count had risen to 66 with 500 people reported missing. Two weeks later the toll of confirmed dead would rise to 118 with some 30 persons still unaccounted for. (The death total was eventually established at 118 with 6 persons remaining missing.) Out of a population of approximately 5,000 on Buffalo Creek and its tributaries, nearly 4,000 would be homeless. Over 900 houses out of approximately 1500 would be almost totally destroyed along with a like number of private vehicles. An estimated 1,100 persons would be treated for injuries, most of these of a non-critical nature.

### Warning

It cannot be said that the disaster struck without warning, particularly in the Middle Fork area which was closest to the impoundment. In this side hollow two deputy sheriffs sped through the area urging people to evacuate; one had his siren operating. The mine operators called several people in Saunders and Pardee aprising them of the danger and asking them to notify friends and neighbors. There was also some scattered warning down the length of Buffalo Creek as families moved out of the most immediately threatened hollow of Middle Fork to stay with friends in what they considered a safer place on Buffalo Creek. The deputy sheriffs also spread the word down the creek to many families, and there was a great deal of telephoning by concerned people who had themselves been warned. But for others the first clue that something was amiss was the sight of neighbors' houses floating by. Some residents actually saw the wall of water coming and had enough time to climb up the ridge to safety.

But the immediate warning was not universal. It was also ignored by many. And the State Police who had the capability of launching an all-out evacuation effort were not notified until after the dam had broken.

There were some more remote indicators of danger as well, which paradoxically seemed to have had an opposite effect, i.e., of comforting rather than alarming. A similar impoundment had given way in 1966 causing high water levels along the creek and a great deal of inconvenience. However, there had been no injuries nor loss of life. In 1970 also there had been a break along one side and close to the top of this same "gob pile" which caused a considerable spill; but there was no tragic aftermath. There had been efforts the previous year on the part of some residents to get the company to do something about the danger, but nothing was done, and most residents seemed to feel, judging from past experience, that the danger was really exaggerated. No one, including the mine officials, seemed to have any idea of the potential scope and intensity of the danger. No one really knew how much water was backed up on Middle Fork.

Residents reported that warnings of an imminent break in the dam had become frequent in the last several years, maybe two or three times per year. Some heeded such warnings and some did not. Evacuation meant moving the family through heavy rain as much as 20 miles or more and moving in with relatives or friends. Most had, therefore, optimistically adjusted their thinking to living with the threat and waiting it out.

The situation that developed here is not atypical. People get used to recurrent danger cues, particularly if there are no serious consequences. They, therefore, may not respond to an actual warning or not take all appropriate actions. Organizations under similar conditions as well as people, may likewise become insensitive and unresponsive to indicators of a threat.

#### Community Response

The town of Man, West Virginia on the Guyandotte River at the mouth of Buffalo Creek was not seriously disrupted and it was not affected as far as loss of life and property was concerned, although a considerable accumulation of debris was deposited in low lying areas. This town became the focal point of the more formally organized rescue efforts. Meanwhile, unknown to officials in Man, the Boone County community of Wharton, some 40 miles distant by road from Man, was launching its own independent relief operations directly into the head of the creek utilizing 4-wheel drive vehicles over abandoned strip-mine properties.

The State Police set up headquarters at the Man Grade School and began to coordinate their radio controlled vehicles from this central location. They served to establish radio contact with the Buffalo Creek area as far up as their vehicles would reach, just a short distance above Amherstdale. One of their major concerns was the persistent rumor of looting of company stores up the creek. At one point it was reported that there had been an attempt to crack a safe in one of these stores.

The local National Guard unit moved immediately into the Junior High School which is located on Buffalo Creek just one-half mile from its mouth. At this

point they set up a command post and instituted a pass system to control access into the affected area. As they were joined by other units from around the state, they began to exercise primary responsibility for search-and-rescue operations. Coordinating the use of State Road Commission equipment as well as volunteer personnel and equipment from some mining and construction companies, they moved to open up the road to Lorado and beyond.

The Aviation Company of the West Virginia National Guard has its permanent headquarters in Huntington, West Virginia, 70 miles northwest of Buffalo Creek. Equipped with four turbine powered HULA helicopters and trained for medical evacuation missions, this unit had a unique potential for rendering aid in the emergency. The operations section received notice of the disaster at 10:00 on the morning of February 26. Since the unit had not been placed on any standby alert status, the problem became the mustering of crews on a weekend. Three helicopters were operational and one was down for maintenance. The National Guard was able to locate two crews by noon. These copters were not able to depart immediately for the disaster area, however, since the governor's office had ordered them to Charleston, 50 miles east, for the purpose of transporting the governor and his party to the scene of the disaster. By 4:00 p.m. the governor's party and some newsmen boarded the helicopters and an attempt was made to reach the scene. Due to marginal weather conditions enroute and due to the hesitation of the helicopter crews to fly into such conditions with civilian passengers aboard, the mission had to be aborted short of its goal. The governor's party was returned to Charleston and the mission was scheduled for the next day, Sunday, February 27. At this time all three of the operational aircraft were ordered to Charleston to transport the governor, state officials, and newsmen. It was not until Sunday afternoon that the National Guard was able to establish an air rescue operation at the Man High School athletic field.

Due to the great demand for helicopter transportation, both on the part of those seeking to view the disaster area and those seeking transportation to and from the state capital at Charleston, it became necessary for the Emergency Operations Center (EOC) to issue boarding passes to those with a plausible reason for such transport. By Monday, two days after the disaster, it was possible to gain access to the area from Charleston by ground transportation. Nevertheless, there was still a great demand by newsmen and by lower level state functionaries without high priority tasks, e.g., from some non-emergency state agencies, to use the critical helicopter time. By early in the week, the helicopters were already becoming short on time, i.e., according to Army regulations they could only fly a limited number of hours without major maintenance, and this time was almost exhausted.

Regional officials of the American Red Cross from Cincinnati, Ohio had been in the area since Thursday, February 24 due to the general flood threat in the region. They were, therefore, in a position to move swiftly to Man and set up relief operations in the Man High School. Emergency medical aid was instituted at the high school and at several locations along Buffalo Creek utilizing at the peak of the emergency ten full time staff members and fifteen volunteers. A cash grant program for aid to families was set up in two locations: Logan, the county

seat, and at Man. The high school was turned into an emergency shelter with field kitchens and bunks, caring at the height of the emergency for as many as 500 evacuees.

By Sunday afternoon, the President of the United States had declared Logan County a disaster area. In anticipation of his action a disaster assistance coordination team of the regional Office of Emergency Planning had arrived from Philadelphia Saturday evening and proceeded to assume overall responsibility for coordination of federal relief efforts. A "one-stop" center was set up on the second floor of the high school including such agencies as: Farm Home Administration (disaster housing loans), Social Security, Small Business Administration, Housing and Urban Development, Veterans Administration, West Virginia Department of Highways (finding sites for temporary housing), Office of Economic Opportunity (legal services), and, the busiest of all, Department of Agriculture (food stamps).

The Salvation Army, utilizing volunteers from several area colleges, established field locations along Buffalo Creek and coordinated the activities of these through a central office at the Man High School. In addition to their usual activities of distributing food and clothing, they became involved in the distribution of drugs to flood victims. This unusual function seemed to emerge as a result of the frequent trips made by Salvation Army personnel and volunteers to and from their field locations and their headquarters at the high school and the location of the Appalachian Regional Hospital next door to the Man High School. The Salvation Army became aware that a great many flood victims were in need of medication for chronic conditions such as diabetes and high blood pressure but had lost their drugs in the flood. In most cases prescriptions for the necessary drugs were on file at the Community Health Center next door to the Man Appalachian Regional Hospital. The center would check the patient's record and dispense the necessary drug to the Salvation Army for distribution to the patient.

The Appalachian Regional Hospital received word of the disaster at 8:30 a.m. and put its emergency plan into operation. By 10:00 the plan was in full operation. Patients were coming in steadily, but not in numbers great enough to cause a strain on the facilities. Patients were screened and referred to Triage One, Two, or Three or to the Emergency Room. Only 21 patients needed to be admitted as a direct result of the flood; 148 others were given intensive treatment such as suturing or casts; some 300 others were treated for minor cuts and abrasions. Over 700 were screened and referred to other agencies (such as the Community Health Center) for outpatient service or to the Man High School for shelter.

An interesting and apparently specious rumor was widely circulated that snakebites were becoming a major problem in the flood area. It was commonly believed around Man that the flood had disturbed a large number of poisonous rattlesnakes and copperheads which were impeding searchers' progress. Several of these reports were related in considerable detail. However, there was no official confirmation of them and medical records failed to reveal that anyone had been treated for snakebite.

The hospital estimated that they could handle as many as 50 patients at one time under emergency conditions. However, they were not really put to the test because patients came in gradually and steadily. Since the hospital is located less than a mile from the mouth of Buffalo Creek, transportation was not a great problem. Many came in on foot or in National Guard trucks; some others, in helicopters. There was speculation that transportation of the injured might have been a much greater problem if the disaster site had been further removed from a modern hospital facility.

Some unplanned and unanticipated medical aid became available to the residents of Buffalo Creek on Sunday when the National Guard Aviation Company flew in four medical teams from Huntington consisting of 12 doctors plus nurses and lab technicians. This was a spontaneous gesture on the part of the doctors and was not called for in any emergency plan. One of the doctors had been a guardsman himself and knew that the helicopters were located at Huntington and would be moving into the disaster area, so by a series of telephone calls the teams were assembled and they volunteered directly to the National Guard. Without coordination with the Red Cross, the Office of Emergency Planning, or the Man Regional Hospital, they simply arrived on the scene with their own personnel and supplies and began to render aid. There were also doctors from Williamson and Logan who volunteered their services. The Man Regional Hospital very loosely coordinated these efforts and eventually sent medical teams into the creek to replace the volunteer teams when they pulled out.

While the main formally organized rescue efforts were being mounted from the base at Man going up Buffalo Creek, another rescue party had already reached the hardest hit area and was busily transporting the injured and homeless over the ridges into Boone County. The town of Wharton first received word of the disaster about 10:00 a.m. when some Buffalo Creek miners and their families made their way on foot over the difficult terrain separating the head of Buffalo Creek from the Boone County mining communities. There were no paved roads into the disaster area from this direction, not even graveled or graded dirt roads. There was, however, a complex interconnecting series of muddy overgrown trails along the ridge tops, some of which had provided access to strip mines in the past. Many of the men in Wharton knew these trails from hunting in the area and believed that they could get into the disaster area with 4-wheel drive vehicles. The men began to round up vehicles, while the women set to work preparing the Wharton Junior High School to receive flood victims. At the height of the rescue effort 25 vehicles were involved carrying food and clothes into Buffalo Creek and carrying victims out. By noon, the women of the community, having gathered food door-to-door, were serving hot meals at the school.

Bunks were obtained from Camp Lightfoot, a local boy scout camp, and bedding was gathered within the local area. Approximately 150 people were cared for in Wharton unknown to the Emergency Operations Center at Man. Many of these people were counted among the missing at the other end of the creek. It was not until two days later that the Emergency Operations Center found out about the Wharton rescue operation. The people in Wharton had not made any effort to seek aid from the Red Cross or any other organization and even seemed to resent it when



it was eventually offered. Eastern Associated Coal Company which had operations in the Wharton area gave some assistance by volunteering 3 vehicles and by allowing their miners time off at full pay to work in the rescue operations. One of Eastern's supervisors, a resident of Wharton, seemed to exercise overall direction of the effort.

#### Community Coordination

The response to the Buffalo Creek dam break was unusual in the proportion of control exercised by regional and national agencies as compared to state and local ones. As already mentioned, regional officials of the Red Cross were on hand at the outset and ready to swing into action. They were very soon followed by regional and national officials of the Office of Emergency Preparedness (OEP). These OEP and Red Cross officials set up offices side by side in the high school and coordinated relief efforts directly with the principal of the school and with all the other agencies involved at the scene without much contact with state Civil Defense and OEP personnel. The regional OEP people constituted the Emergency Operations Center, and it was to them that most crucial questions were addressed by flood victims and local and state agencies involved in the response and actually on the scene. When coordination with the state government was required it was done through the Director of State and Federal Relations, a close personal advisor to the governor.

The state's disaster plan calls for the state's Office of Emergency Planning to handle overall coordination in a disaster; however, this procedure was bypassed in the actual event. There were several reasons for this. The state OEP is primarily a planning agency under the Department of Finance and Administration. The Commissioner of Finance and Administration is titular director of the state OEP but has no experience in disaster planning. The actual working head of the agency is an assistant to the commissioner who is not very well acquainted with or known to the governor. This may account in part for the governor's tendency to assume more direct control through his Director of State-Federal Relations. The state OEP is not staffed well enough to be on alert at all times, nights and weekends; and, as it happened, on this particular weekend, both top officials were out of town. The state OEP did not, therefore, set up an EOC in the flood area, but limited itself to looking after the more long-range planning problems: working with the Corps of Engineers on contracting for cleanup operations, coordinating some of the food and clothing coming from out of state, and making provisions for items which were in short supply at the scene, such as portable toilets.

The state plan also called for an Emergency Communications Center to be activated in the basement of the state capital involving the State Police, NORAD, the Department of Natural Resources and Civil Defense. This communications center was designed to provide all the agencies with significant communications facilities and to serve as the state level coordination center. This facility was never activated.

There was also a lack of coordination at the local level. Local units of the State Police and the National Guard were the first to respond and they set up their headquarters in locations remote from the EOC: the State Police at the grade school in Man and the National Guard in Buffalo Creek itself at the junior high school. There was only very informal contact between these agencies. At one point the State Police were informing people that there was no need for passes to go into Buffalo Creek, while the National Guard was issuing passes and turning back anyone not carrying one.

Voluntary contributions of food and clothing were overwhelming as ex-Logan countians mobilized to help their former neighbors and relatives. Logan County has declined in population by approximately one-third in the last twenty years as a result of emigration, primarily to the large urban-industrial areas of Ohio and Michigan. These emigrees shocked by the tragedy and bound by strong ties to the victims, launched solicitation campaigns in their adopted cities of the north using mass media -- primarily TV appeals. The result was a glut of food and clothing in Man and Logan and Charleston, most of which never reached the victims. Practically everybody was in the business of coordinating the distribution of these goods which means there was virtually no overall coordination. Perishable food became a particular problem. One health official spotted 100 gallons of milk sitting by the side of a road, unwatched, unrefrigerated, and unclaimed. Many victims of the flood found it necessary to pick through the piles of donated clothes to furnish themselves with dry outfits, but only a small proportion of the donated supplies were even examined by the victims. And even in the midst of such abundance there were still some items in very short supply, notably underwear and baby food.

Some problems arose in trying to determine the scope of the disaster in terms of casualties. As the search of the wreckage continued and the body count rose, so did the figure of those missing. Apparently a large number of those listed as missing turned up at the homes of acquaintances in neighboring hollows to which they had fled without pausing to seek help from any official agency. People were generally hesitant to seek aid. Several men came in apologetically to turn in a Red Cross emergency cash grant check when they found that another member of the family had already been issued a check at another location. One man came in three days after the dam break, hat in hand and feet shuffling, to explain that he had fifty people living at his house and that all the food in the hollow was used up. It became apparent that a large proportion of the homeless were being quartered in such arrangements and that some had even moved on to cities out of the state to stay with relatives.

#### A Concluding Observation

The most outstanding characteristic of this disaster was the almost total lack of coordination in organizational response. As already alluded to, there were a number of reasons for this. Some federal and regional groups were already operating in the area before the disaster occurred. The overall state disaster plan was never activated. Because of the non-urban nature of the impacted area,

local community emergency organizations were few, weak, or non-existent. Because of these and other reasons, while there was a considerable collective response to the disaster, it was by isolated groups and clusters of agencies rather than an across-the-board and integrated effort.

The consequence, as is to be expected under such circumstances, was c inefficiency and ineffectiveness in relief activities, duplication of effort, delays or unknowing non-recognition of problems, and a general compounding of the suffering of a population and of an area badly hit by a major catastrophe. Only the traditional self-reliance and extensive network of small groups of relatives and friends among the local residents prevented the situation from being far worse than it was. A stronger case for the need of pre-crisis overall emergency planning can not be found in recent American disasters.